Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the above-identified application:

Listing of Claims:

1.-59. (Canceled)

60. (Previously Presented) A system for generating an analog broadcast television stereo signal from a left-channel signal and a right-channel signal, comprising:

an analog-to-digital converter arrangement configured so as to convert the right-channel signal to a right digital signal and convert the left-channel signal to a left digital signal;

a signal combiner arrangement coupled to the analog-to-digital converter arrangement and configured so as to generate a summation signal comprising the sum of the right digital signal and the left digital signal, and generate a difference signal comprising the difference between the right digital signal and the left digital signal;

a first up-sampler configured to insert additional samples into the summation signal to increase the sample rate of the summation signal;

a second up-sampler configured to insert additional samples into the difference signal to increase the sample rate of the difference signal;

a sum and difference signal generator arrangement configured so as to generate a first pre-emphasized digital signal as a function of the summation signal, and a second pre-emphasized digital signal as a function of the difference signal;

a signal transformation arrangement configured so as to transform the first pre-emphasized digital signal to a digital BTSC compliant L+R signal, and transform the second pre-emphasized digital signal to a digital BTSC compliant L-R signal;

a digital-to-analog converter arrangement configured to convert the digital BTSC compliant L+R signal to an analog BTSC compliant L+R signal, and the digital BTSC compliant L-R signal to an analog BTSC compliant L-R signal; and

a composite signal generator arrangement configured so as to generate a composite signal as a function of the combination of the analog BTSC compliant L+R signal and a modulated version of the analog BTSC compliant L-R signal.

61. (Previously Presented) The system according to claim 60, wherein the sum and difference signal generator arrangement comprises a digital signal processor arrangement programmed to digitally add pre-emphasis to each of the summation and difference signals.

62. (Previously Presented) The system according to claim 60, wherein the signal transformation arrangement comprises an L-R data path and an L+R data path, each path having a preselected sample rate.

63. (Previously Presented) A method of generating an analog broadcast television stereo signal from a left-channel signal and a right-channel signal, comprising:

converting the right-channel signal to a right digital signal and converting the left-channel signal to a left digital signal;

generating a summation signal comprising the sum of the right digital signal and the left digital signal, and generating a difference signal comprising the difference between the right digital signal and the left digital signal;

with a first up-sampler, inserting additional samples into the summation signal to increase the sample rate of the summation signal;

with a second up-sampler, inserting additional samples into the difference signal to increase the sample rate of the difference signal;

generating a first pre-emphasized digital signal as a function of the summation signal, and generating a second pre-emphasized digital signal as a function of the difference signal;

transforming the first pre-emphasized digital signal to a digital BTSC compliant L+R signal and transforming the second pre-emphasized digital signal to a digital BTSC compliant L-R signal;

converting the digital BTSC compliant L+R signal to an analog BTSC compliant L+R signal, and converting the digital BTSC compliant L-R signal to an analog BTSC compliant L-R signal; and

generating a composite signal as a function of a combination of the analog BTSC compliant L+R signal and a modulated version of the analog BTSC compliant L-R signal.

64. (Previously Presented) The method according to claim 63, further comprising:

generating a modulated version of the analog BTSC compliant L-R signal after converting the digital BTSC L-R signal to an analog BTSC compliant L-R signal.

65. (Previously Presented) The method according to claim 63, wherein the step of generating the first pre-emphasized digital signal and generating the second pre-emphasized digital signal comprises:

using a programmed digital signal processor arrangement to digitally add pre-emphasis to each of the summation and difference signals.

66. (Previously Presented) The method according to claim 63, wherein the step of transforming the first pre-emphasized signal and transforming the second pre-emphasized signal comprises:

sampling the first pre-emphasized signal at a first preselected sample rate, and sampling the second pre-emphasized signal at a second preselected sample rate.

67. (Previously Presented) A method of generating an analog broadcast television stereo signal from a left-channel signal and a right-channel signal, comprising:

converting the right-channel signal to a right digital signal;

converting the left-channel signal to a left digital signal;

generating a summation signal comprising the sum of the right digital signal and the left digital signal;

generating a difference signal comprising the difference between the right digital signal and the left digital signal;

with a first up-sampler, inserting additional samples into the summation signal to increase the sample rate of the summation signal;

with a second up-sampler, inserting additional samples into the difference signal to increase the sample rate of the difference signal;

generating a first pre-emphasized digital signal corresponding to the summation signal;

generating a second pre-emphasized digital signal corresponding to the difference signal;

transforming the first pre-emphasized digital signal to a digital BTSC compliant L+R signal;

transforming the second pre-emphasized digital signal to a digital BTSC compliant L-R signal;

converting the digital BTSC compliant L+R signal to an analog BTSC compliant L+R signal;

converting the digital BTSC compliant L-R signal to an analog BTSC compliant L-R signal; and

generating a composite signal as a function of a combination of the analog BTSC compliant L+R signal with a modulated version of the analog BTSC compliant L-R signal.

68. (Previously Presented) The method according to claim 67, further comprising:

generating a modulated version of the analog BTSC compliant L-R signal after converting the digital BTSC compliant L-R signal to an analog BTSC compliant L-R signal.

69. (Currently Amended) A system for generating an analog broadcast television stereo signal from a left-channel signal and a right-channel signal, comprising:

an analog-to-digital converter arrangement configured so as to convert the right-channel signal to a right digital signal and convert the left-channel signal to a left digital signal;

a signal combiner arrangement coupled to the analog-to-digital converter arrangement and configured so as to generate a summation signal comprising the sum of the right digital signal and the left digital signal, and generate a difference signal comprising the difference between the right digital signal and the left digital signal; wherein the difference between the summation signal and the difference signal, for a given frequency and level, conforms with the difference specified by the BTSC standard;

~~a first up-sampler configured to insert additional samples into the summation signal to increase the sample rate of the summation signal;~~

~~a second up-sampler configured to insert additional samples into the difference signal to increase the sample rate of the difference signal;~~

a sum and difference signal generator arrangement configured so as to generate a first pre-emphasized digital signal as a function of the summation signal, and a second pre-emphasized digital signal as a function of the difference signal;

a signal transformation arrangement configured so as to transform the first pre-emphasized digital signal to a digital BTSC compliant L+R signal, and transform the second pre-emphasized digital signal to a digital BTSC compliant L-R signal;

a composite signal generator arrangement configured so as to generate a digital composite signal as a function of the combination of the digital BTSC compliant L+R signal and a modulated version of the digital BTSC compliant L-R signal; and

a digital-to-analog converter arrangement configured to convert the digital composite signal to an analog composite signal.

70. (Previously Presented) The system according to claim 69, wherein the sum and difference signal generator arrangement comprises a digital signal processor arrangement programmed to digitally add pre-emphasis to each of the summation and difference signals.

71. (Previously Presented) The system according to claim 69, wherein the signal transformation arrangement comprises an L-R data path and an L+R data path, each path having a preselected sample rate.

72. (Previously Presented) A method of generating an analog broadcast television stereo signal from a left-channel signal and a right-channel signal, comprising:

converting the right-channel signal to a right digital signal and converting the left-channel signal to a left digital signal;

generating a summation signal comprising the sum of the right digital signal and the left digital signal, and generating a difference signal comprising the difference between the right digital signal and the left digital signal;

with a first up-sampler, inserting additional samples into the summation signal to increase the sample rate of the summation signal;

with a second up-sampler, inserting additional samples into the difference signal to increase the sample rate of the difference signal;

generating a first pre-emphasized digital signal as a function of the summation signal, and generating a second pre-emphasized digital signal as a function of the difference signal;

transforming the first pre-emphasized digital signal to a digital BTSC compliant L+R signal and transforming the second pre-emphasized digital signal to a digital BTSC compliant L-R signal;

generating a digital composite signal as a function of a combination of the digital BTSC compliant L+R signal and a modulated version of the digital BTSC compliant L-R signal; and

converting the digital composite signal to an analog composite signal.

73. (Previously Presented) The method according to claim 72, further comprising:

generating a modulated version of the digital BTSC compliant L-R signal before converting the digital composite signal to an analog composite signal.

74. (Previously Presented) The method according to claim 72, wherein generating the first pre-emphasized digital signal and generating the second pre-emphasized digital signal comprises:

using a programmed digital signal processor arrangement to digitally add pre-emphasis to each of the summation and difference signals.

75. (Previously Presented) The method according to claim 72, wherein transforming the first pre-emphasized digital signal and transforming the second pre-emphasized digital signal comprises:

sampling the first pre-emphasized digital signal at a first preselected sample rate, and sampling the second pre-emphasized digital signal at a second preselected sample rate.

76. (Previously Presented) A method of generating a broadcast television stereo signal from a left-channel signal and a right-channel signal, comprising:

converting the right-channel signal to a right digital signal;

converting the left-channel signal to a left digital signal;

generating a summation signal comprising the sum of the right digital signal and the left digital signal;

generating a difference signal comprising the difference between the right digital signal and the left digital signal;

with a first up-sampler, inserting additional samples into the summation signal to increase the sample rate of the summation signal;

with a second up-sampler, inserting additional samples into the difference signal to increase the sample rate of the difference signal;

generating a first pre-emphasized digital signal corresponding to the summation signal;

generating a second pre-emphasized digital signal corresponding to the difference signal;

transforming the first pre-emphasized digital signal to a digital BTSC compliant L+R signal;

transforming the second pre-emphasized digital signal to a digital BTSC compliant L-R signal;

generating a digital composite signal as a function of a combination of the digital BTSC compliant L+R signal with a modulated version of the digital BTSC compliant L-R signal; and

converting the digital composite signal to an analog composite signal.

77. (Previously Presented) The method according to claim 76, further comprising:

generating a modulated version of the digital BTSC compliant L-R signal before generating the digital composite signal.

78. (Currently Amended) A digital signal processor arrangement for use in generating a broadcast television BTSC encoded stereo signal from a left-channel signal and a right-channel signal, comprising:

a signal generator arrangement configured so as to generate a digital summation signal as a function of the sum of the left-channel and right-channel signals, and a digital difference signal

as a function of the difference between the left-channel and right-channel signals; wherein the difference between the digital summation signal and the digital difference signal, for a given frequency and level, conforms with the difference specified by the BTSC standard;

~~a first up-sampler configured to insert additional samples into the digital summation signal to increase the sample rate of the digital summation signal;~~

~~a second up-sampler configured to insert additional samples into the digital difference signal to increase the sample rate of the digital difference signal;~~

a summation signal processing arrangement including a filter arrangement configured to filter the digital summation signal so as to produce a conditioned digital summation signal;

a difference signal processing arrangement including a pre-emphasis filter arrangement and a signal compressor arrangement, the filter and signal compressor arrangements being configured so as to condition and compress the digital difference signal so as to produce a conditioned digital difference signal;

a digital-to-analog converter arrangement for converting the conditioned digital summation signal to an analog sum signal, and the conditioned digital difference signal to an analog difference signal; and

a signal combiner arrangement configured so as to combine the analog sum signal with a modulated version of the analog difference signal.

79. (Previously Presented) An arrangement in accordance with claim 78, wherein the filter arrangement of the summation signal processing arrangement is configured so as to filter the digital summation signal with a 75μs pre-emphasis so as to produce a conditioned digital summation signal.

80. (Currently Amended) A digital signal processor arrangement for use in generating a broadcast television BTSC encoded stereo signal from a left-channel signal and a right-channel signal, comprising:

a signal generator arrangement configured so as to generate a digital summation signal as a function of the sum of the left-channel and right-channel signals, and a digital difference signal as a function of the difference between the left-channel and right-channel signals; wherein the difference between the digital summation signal and the digital difference signal, for a given frequency and level, conforms with the difference specified by the BTSC standard;

~~a first up-sampler configured to insert additional samples into the digital summation signal to increase the sample rate of the digital summation signal;~~

~~a second up-sampler configured to insert additional samples into the digital difference signal to increase the sample rate of the digital difference signal;~~

a summation signal processing arrangement including a filter arrangement configured to filter the digital summation signal so as to produce a conditioned digital summation signal;

a difference signal processing arrangement including a pre-emphasis filter arrangement and a signal compressor arrangement, the filter and compressor arrangements being configured so as to condition and compress the digital difference signal so as to produce a conditioned digital difference signal;

a signal combiner arrangement configured so as to combine the conditioned digital summation signal with a modulated version of the conditioned digital difference signal so as to generate a composite modulated signal; and

a digital-to-analog converter arrangement for converting the composite modulated signal to an analog output signal.

81. (Previously Presented) An arrangement in accordance with claim 80, wherein the filter arrangement of the summation signal processing arrangement is configured so as to filter the digital summation signal with a 75μs pre-emphasis so as to produce a conditioned digital summation signal.

82. (Currently Amended) A method of digitally encoding left and right channel audio signals in accordance with the BTSC standard, comprising:

providing digital left and digital right channel audio signals;

combining the digital left and digital right channel audio signals to form a digital sum signal and a digital difference signal, wherein the difference between the digital sum signal and the digital difference signal, for a given frequency and level, conforms with the difference specified by the BTSC standard; and

~~with a first up-sampler, inserting additional samples into the digital sum signal to increase the sample rate of the digital sum signal;~~

~~with a second up-sampler, inserting additional samples into the digital difference signal to increase the sample rate of the digital difference signal; and~~

encoding the digital sum signal and the digital difference signal according to the BTSC standard so as to produce a digital BTSC signal.

83. (Previously Presented) A method of digitally encoding left and right channel audio signals according to claim 82, wherein providing digital left and digital right channel audio signals includes receiving analog left and right channel audio signals and digitizing the analog left and right channel audio signals so as to produce the digital left and right channel audio signals.

84. (Previously Presented) A method of digitally encoding left and right channel audio signals according to claim 82, wherein encoding the digital sum signal and the digital difference signal according to the BTSC standard includes encoding the digital sum channel with an applied 75μs preemphasis.

85. (Previously Presented) A method of digitally encoding left and right channel audio signals according to claim 82, wherein encoding the digital sum signal and the digital difference signal according to the BTSC standard includes encoding the digital difference signal with an adaptive signal weighting system.

86. (Currently Amended) A digital signal processor for producing a signal encoded according to the BTSC standard, said digital signal processor comprising:

A) an input section constructed and arranged so as to (1) receive digital left and digital right audio signals and (2) combine the digital left and digital right audio signals so as to form a digital sum signal and a digital difference signal;

B) a difference channel processing section constructed and arranged so as to encode the digital difference signal according to the BTSC standard~~, the difference channel processing section including a first up-sampler configured to insert additional samples into the digital difference signal to increase the sample rate of the digital difference signal~~; and

C) a sum channel processing section constructed and arranged so as to condition the digital sum signal according to the BTSC standard~~, the sum channel processing section including a second up-sampler configured to insert additional samples into the digital sum signal to increase the sample rate of the digital sum signal.~~;

D) wherein the difference between the digital sum signal and the digital difference signal, for a given frequency and level, conforms with the difference specified by the BTSC standard.

87. (Currently Amended) A system for producing a digital composite modulated BTSC signal comprising a digital BTSC encoder arranged so as to generate a digital BTSC encoded signal, and a digital composite modulator, wherein the digital composite modulator comprises (i) a difference channel processing section constructed and arranged so as to encode a digital difference signal according to the BTSC standard~~, the difference channel processing section including a first up-sampler configured to insert additional samples into the digital difference signal to increase the sample rate of the digital difference signal~~, and (ii) a sum channel processing section constructed and arranged so as to condition a digital sum signal according to the BTSC standard~~, the sum channel processing section including a second up-sampler configured to insert additional samples into the digital sum signal to increase the sample rate of the digital sum signal~~; wherein the BTSC encoder has a frequency response in the digital domain that is substantially equal to the analog frequency response specified by the BTSC standard.

88. (Previously Presented) A method of generating a digital composite modulated BTSC signal, comprising:

generating digital left and digital right channel audio signals;

combining said digital left and digital right channel audio signals so as to form a digital sum signal and a digital difference signal;

with a first up-sampler, inserting additional samples into the digital sum signal to increase the sample rate of the digital sum signal;

with a second up-sampler, inserting additional samples into the digital difference signal to increase the sample rate of the digital difference signal;

encoding the digital sum signal and digital difference signal according to the BTSC standard so as to produce a digital BTSC signal; and

modulating the digital BTSC signal so as to produce a digital composite modulated BTSC signal.

89. (Currently Amended) A circuit for encoding digital left and digital right audio signals according to the BTSC standard, comprising:

a digital matrix unit configured to generate a digital sum channel signal and a digital difference channel signal;

~~a first up-sampler configured to insert additional samples into the digital sum channel signal to increase the sample rate of the digital sum channel signal;~~

~~a second up-sampler configured to insert additional samples into the digital difference channel signal to increase the sample rate of the digital difference channel signal;~~

a sum channel processing unit; and

a difference channel processing unit;

wherein said sum channel processing unit is configured to produce a conditioned digital sum channel signal in response to the digital sum channel signal, and the difference channel processing unit is configured to produce an encoded digital difference channel signal in response to the digital difference channel signal; and wherein the digital matrix has a frequency response in the digital domain that is substantially equal to the analog frequency response specified by the BTSC standard.

90. A circuit for encoding digital left and digital right audio signals according to claim 89, wherein the digital matrix unit, the difference channel processing unit, and the sum channel processing unit are included on a single integrated circuit.

91. (Previously Presented) A circuit for encoding digital left and digital right audio signals according to claim 89, wherein the digital matrix unit, the difference channel processing unit, and the sum channel processing unit are implemented by a digital signal processor.

92. (Currently Amended) A circuit for producing a digital composite modulated BTSC signal, comprising a matrix unit configured to produce a digital sum signal and a digital difference signal, ~~a first up-sampler configured to insert additional samples into the digital sum signal to increase the sample rate of the digital sum signal, a second up-sampler configured to insert additional samples into the digital difference signal to increase the sample rate of the digital difference signal,~~ a digital sum channel processing unit configured to produce a conditioned digital sum signal in response to the digital sum signal, and a digital difference channel processing unit conditioned to produce an encoded digital difference signal in response to the digital difference signal, and a digital modulator unit configured to produce a composite modulated signal in response to the encoded digital difference signal and the conditioned digital sum signal;

wherein the matrix unit has a frequency response in the digital domain that is substantially equal to the analog frequency response specified by the BTSC standard.

93. (Previously Presented) A circuit for producing a digital composite modulated BTSC signal according to claim 92, wherein the digital modulator unit is configured to modulate the encoded digital difference signal at a frequency substantially equal to 31,468 Hz.

94.-103. (Canceled)

104. (Currently Amended) A digital signal processor comprising:

(a) an input section configured to receive one or more digital signals and derive therefrom a digital sum signal and a digital difference signal;

(b) a digital difference channel section comprising (i) an adaptive signal weighting system configured to dynamically vary the amplitude and phase of the digital difference signal, ~~(ii) a first up-sampler configured to insert additional samples into the digital difference signal to increase the sample rate of the digital difference signal,~~ and (ii[[i]]) a frequency shifting system configured to alter the frequency of the digital difference signal according to the BTSC standard to produce a modified digital difference signal;

(c) a digital sum channel section comprising ~~a second up-sampler configured to insert additional samples into the digital sum signal to increase the sample rate of the digital sum signal and~~ one or more digital filters for altering the amplitude and phase of the digital sum signal according to the BTSC standard so as to produce a modified digital sum signal, and

(d) an output section configured to combine the modified digital difference signal and modified digital sum signal and subsequently form one or more digital output signals[[.]]; and

wherein the adaptive signal weighting system is configured to vary the amplitude of substantially all the spectrum within the digital difference signal responsive to the amplitude of substantially all the spectrum within the digital difference signal.

105. (Previously Presented) A digital signal processor according to Claim 104, wherein said frequency shifting system is configured to alter the frequency of the digital difference signal by substantially 31.468 kHz.

106. (Currently Amended) A digital signal processor comprising

(a) an input section configured to receive one or more digital signals and derive therefrom a digital sum signal and digital difference signal;

(b) a digital difference channel section comprising (i) an adaptive signal weighting system configured to dynamically vary the amplitude and phase of the digital difference signal, ~~(ii) a first up-sampler configured to insert additional samples into the digital difference signal to increase the sample rate of the digital difference signal,~~ and (ii[[i]]) a multiplier system configured to alter the frequency of the digital difference signal according to the BTSC standard to produce a modified digital difference signal, wherein the adaptive signal weighting system is configured to vary the amplitude of substantially all the spectrum within the digital difference signal responsive to the amplitude of substantially all the spectrum within the digital difference signal;

(c) a digital sum channel section comprising ~~a second up-sampler configured to insert additional samples into the digital sum signal to increase the sample rate of the digital sum signal and~~ one or more digital filters for altering the frequency and phase of said digital sum signal according to the BTSC standard to produce a modified digital sum signal; and

(d) an output section for combining said modified digital difference signal and modified digital sum signal to form one or more digital output signals.

107.-108. (Canceled)

109. (Currently Amended) A digital signal processor comprising

a) an input section configured to receive one or more digital input signals;

b) a sum-channel processing section for creating and conditioning a sum-channel signal according to the BTSC standard from the digital input signals~~, the sum-channel processing section including a including a first up-sampler;~~

c) a difference-channel processing section for creating and filtering a difference-channel signal according to the BTSC standard from said digital input signals, ~~the difference-channel processing section including a including a second up-sampler;~~ and

d) a combining section for transforming the sum-channel signal and the difference-channel signal into one or more output signals according to the BTSC standard;

wherein the digital signal processor has a frequency response in the digital domain that is substantially equal to the analog frequency response specified by the BTSC standard.

110. (Currently Amended) A method of generating one or more digital output signals according to the BTSC standard, comprising:

filtering a digital signal including sum-channel information so as to create a digital sum-channel signal according to the BTSC standard;

filtering a digital signal including difference-channel information so as to create a digital difference-channel signal according to the BTSC standard; and

~~with a first up-sampler, inserting additional samples into the digital sum-channel signal to increase the sample rate of the digital sum-channel signal;~~

~~with a second up-sampler, inserting additional samples into the digital difference-channel signal to increase the sample rate of the digital difference-channel signal; and~~

combining the sum-channel signal and the difference-channel signal so as to form one or more digital output signals according to the BTSC standard, wherein the difference between the sum-channel signal and the difference-channel signal, for a given frequency and level, conforms with the difference specified by the BTSC standard.

111. (Canceled)

112. (Currently Amended) A system for generating a broadcast television stereo signal from a left-channel signal and a right-channel signal, comprising:

a signal combiner arrangement configured so as to generate a summation signal comprising the sum of a right digital signal and a left digital signal, and generate a difference signal comprising the difference between the right digital signal and the left digital signal;

~~a first up-sampler configured to insert additional samples into the summation signal to increase the sample rate of the summation signal;~~

~~a second up-sampler configured to insert additional samples into the difference signal to increase the sample rate of the difference signal;~~

a sum and difference signal generator arrangement configured so as to generate a first pre-emphasized digital signal as a function of the summation signal, and a second pre-emphasized digital signal as a function of the difference signal;

a signal transformation arrangement configured so as to transform the first pre-emphasized digital signal to a digital BTSC compliant L+R signal, and transform the second pre-emphasized digital signal to a digital BTSC compliant L-R signal, wherein the difference between the digital BTSC compliant L+R signal and the digital BTSC compliant L-R signal, for a given frequency and level, conforms with the difference specified by the BTSC standard; and

a composite signal generator arrangement configured so as to generate a digital composite signal as a function of the combination of the digital BTSC compliant L+R signal and a modulated version of the digital BTSC compliant L-R signal.

113. (Currently Amended) A method of generating a broadcast television stereo signal from a left-channel signal and a right-channel signal, comprising:

generating a summation signal comprising the sum of a right digital signal and a left digital signal, and generating a difference signal comprising the difference between the right digital signal and the left digital signal;

~~with a first up-sampler, inserting additional samples into the summation signal to increase the sample rate of the summation signal;~~

~~with a second up-sampler, inserting additional samples into the difference signal to increase the sample rate of the difference signal;~~

generating a first pre-emphasized digital signal as a function of the summation signal, and generating a second pre-emphasized digital signal as a function of the difference signal;

transforming the first pre-emphasized digital signal to a digital BTSC compliant L+R signal and transforming the second pre-emphasized digital signal to a digital BTSC compliant L-R signal, wherein the difference between the digital BTSC compliant L+R signal and the digital BTSC compliant L-R signal, for a given frequency and level, conforms with the difference specified by the BTSC standard; and

generating a digital composite signal as a function of a combination of the digital BTSC compliant L+R signal and a modulated version of the digital BTSC compliant L-R signal.

114. (Currently Amended) A system for generating a broadcast television stereo signal from a left digital signal and a right digital signal, comprising:

(a) circuitry that generates a summation signal comprising the sum of the right digital signal and the left digital signal, and a difference signal comprising the difference between the right digital signal and the left digital signal~~, wherein the circuitry comprises (i) a first up-sampler configured to insert additional samples into the summation signal to increase the sample rate of the summation signal, and (ii) a second up-sampler configured to insert additional samples into the difference signal to increase the sample rate of the difference signal~~;

(b) preemphasis circuitry that generates a first digitally pre-emphasized signal corresponding to the summation signal, and a second digitally pre-emphasized signal corresponding to the difference signal; and

(c) transforming circuitry that transforms the first pre-emphasized signal to a digital BTSC L+R signal and that transforms the pre-emphasized second signal to a digital BTSC L-R signal; wherein the difference between the digital BTSC L+R signal and the digital BTSC L-R

signal, for a given frequency and level, conforms with the difference specified by the BTSC standard.

115. (Previously Presented) A system for producing a digital composite modulated BTSC signal according to claim 87, wherein the digital composite modulator is arranged to generate the digital composite modulated BTSC signal responsively to and as a function of the BTSC encoded signal.

116. (Previously Presented) The digital signal processor according to claim 104, wherein the digital output signals are encoded in accordance with the BTSC standard.

117. (Previously Presented) The digital signal processor according to claim 106, wherein the digital output signals are BTSC encoded digital output signals.

118. (Currently Amended) The method according to claim [[107]] 132, wherein the digital audio output signal is a BTSC encoded digital audio output signal.

119. (Previously Presented) The digital signal processor according to claim 109, wherein the digital output signals are BTSC encoded output signals.

120. (Canceled)

121. (New) A digital adaptive signal weighting system adapted to process a digital difference signal representing the difference between two stereophonic audio signals, the system comprising:

a first digital filter section configured to alter the gain and phase of the digital difference signal within a first select spectral region according to the BTSC standard; and

a second digital filter section configured to further alter the gain and phase of the digital difference signal within a second select spectral region including at least a part of the first select spectral region according to the BTSC standard;

wherein the adaptive signal weighting system is configured and arranged to vary the amplitude of substantially all the spectrum within the digital difference signal responsive to the amplitude of substantially all the spectrum within the digital difference signal.

122. (New) The digital adaptive signal weighting system according to claim 121, wherein the first and second digital filter sections are configured as a part of an encoder.

123. (New) The digital adaptive signal weighting system according to claim 121, wherein the adaptive signal weighting system includes fixed frequency filters having frequency responses that substantially conform to those of the fixed frequency filters specified within the BTSC standard.

124. (New) The digital adaptive signal weighting system according to claim 121, wherein the adaptive signal weighting system varies the amplitude of substantially the high-frequency portion of the digital difference signal as represented at audio baseband responsive to the amplitude of substantially the high-frequency portion of the digital difference signal as represented at audio baseband.

125. (New) The digital adaptive signal weighting system according to claim 121, wherein the adaptive signal weighting system is configured and arranged such that the variations in amplitude of substantially all the spectrum within the digital difference signal are responsive substantially to the RMS amplitude of substantially all the spectrum within the digital difference signal.

126. (New) The digital adaptive signal weighting system according to claim 121, wherein the adaptive signal weighting system is configured and arranged such that the variations in amplitude of substantially the high-frequency portion of the digital difference signal as represented at audio baseband are responsive substantially to the RMS amplitude of substantially the high-frequency portion of the digital difference signal as represented at audio baseband.

127. (New) The digital adaptive signal weighting system according to claim 121, wherein the first and second digital filter sections are configured as a part of a decoder.

128. (New) The digital signal processor of claim 104, wherein the adaptive signal weighting system varies the amplitude of substantially the high-frequency portion of the digital difference signal as represented at audio baseband responsive to the amplitude of substantially the high-frequency portion of the digital difference signal as represented at audio baseband.

129. (New) The digital signal processor of claim 104, wherein the adaptive signal weighting system includes fixed frequency filters having frequency responses that substantially conform to those of the fixed frequency filters specified within the BTSC standard.

130. (New) The digital signal processor of claim 104, wherein the adaptive signal weighting system is configured and arranged such that the variations in amplitude of substantially all the spectrum within the digital difference signal are responsive substantially to the RMS amplitude of substantially all the spectrum within the digital difference signal.

131. (New) The digital signal processor of claim 104, wherein the adaptive signal weighting system is configured and arranged such that the variations in amplitude of substantially the high-frequency portion of the digital difference signal as represented at audio baseband are responsive substantially to the RMS amplitude of substantially the high-frequency portion of the digital difference signal as represented at audio baseband.

132. (New) A method of generating digital audio signals according to the BTSC standard comprising:

a) accepting one or more digital audio input signals,

b) performing a frequency translation of at least one digital audio signal to form at least one modified digital audio signal, and

c) modifying the amplitude and phase of at least one of the digital audio signals according to the BTSC standard so as to create one or more corresponding digital audio output signals according to such standard, wherein the difference between the modified digital signal and a reference signal, for a given frequency and level, conforms with the difference specified by the BTSC standard.

133. (New) The method of claim 132, wherein performing the frequency translation of the least one digital audio signal includes performing the frequency translation by substantially 31.468 kHz.